

CLAIMS

What is claimed is:

1. A fused silica glass member resistant to optical damage in ultraviolet radiation in the wavelength range between 190 and 300 nm having an internal transmission greater than or equal to 99.65%/cm at a wavelength of 193 nm an absolute maximum birefringence along the use axis of less than or equal to 0.75 nm/cm, H₂ content less than 5 x 10¹⁷ molecules/cc, and OH content greater than 300 ppm.
2. The fused silica glass member of claim 1, wherein the fused silica member has a refractive index homogeneity along the use axis less than or equal to 1 ppm.
3. The fused silica member of claim 2, wherein the fused silica member exhibits a change in transmittance of less than 0.005/cm after the member has been irradiated with 1 x 10¹⁰ shots of 193 nm laser at 1.0 mJ/cm²/pulse.
4. The fused silica glass member of claim 1, wherein the fused silica member has a hydrogen molecule content less than or equal to 2.5 X 10¹⁷ molecules/cm³.
5. The fused silica member of claim 1, wherein the member is used as a lens in a photolithographic system.
6. A fused silica glass member resistant to optical damage in ultraviolet radiation in the wavelength range between 190 and 300 nm having an internal transmission greater than or equal to 99.75%/cm at a wavelength of 193 nm, an absolute maximum birefringence along the use axis of less than or equal to 0.5 nm/cm, H₂ content less than 5 x 10¹⁷ molecules/cc, and OH content greater than 300 ppm.
7. The fused silica glass member of claim 6, wherein the fused silica member has a refractive index homogeneity along the use axis less than or equal to 1 ppm.
8. The fused silica member of claim 7, wherein the fused silica member exhibits a change in transmittance of less than 0.005/cm after the member has been irradiated with 1 x 10¹⁰ shots of 193 nm laser at 1.0 mJ/cm²/pulse.
9. The fused silica glass member of claim 6, wherein the fused silica member has a hydrogen molecule content less than or equal to 2.5 X 10¹⁷ molecules/cm³.
10. The fused silica member of claim 6, wherein the member is used as a lens in a photolithographic system.